

Appl. No. 09/832,167
Amdt. Dated March 15, 2004
Reply to Office Action of September 15, 2003

Attorney Docket No. 81784.0235
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 1-44 are pending in the Application. By this Amendment, claims 1, 3, 11, 13, 20, 27, 32, 35 and 42 are being amended to improve their form. No new matter is involved.

In Paragraph 1 on page 2 of the Office Action, claims 3, 13, 22 and 29 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In this connection, and in the case of claim 3 for example, the value "k" is said to appear to be different than the value "k" with respect to the background region of claim 1. Thus, the expression " $(n-s)/k$ " is said not to make sense because, from a reading of the specification, the value "k" would appear to pertain to a predetermined number of rows of the whole section "k" of claim 1. If the two "k" values are the same, this would make the expression equal to one frame duration instead of a longer frame duration, and therefore the display written would only last for one frame. Clarification is requested.

In response, and by way of clarification, Applicants are amending claim 3 so as to recite "a total $((n-s)/k)$ frame duration which is longer than 1 frame duration, when $k < (n-s)$ is satisfied" (Emphasis Added). Claims 13, 22 and 29 are being amended in similar fashion. Amendment of the claims in this fashion should make clear that all pixels in a background display area are not selected once over one frame duration. As so amended, the claims specify that the condition is that "when $k < (n-s)$ is satisfied". Again, and as amended herein, each of claims 3, 13, 22 and 29 recites "over a total $((n-s)/k)$ frame duration which is longer than 1 frame duration, when $k < (n-s)$ is satisfied". Therefore, the claims should now be clear and definite.

Beginning at the top of page 3 of the Office Action, claims 1-4, 8-14, 16-22, 25 and 26 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. published application number 2002/0175887 A1 of Yamazaki. Beginning on page 5 of the

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Office Action, claims 5-7, 15, 23, 24, 27, 29-35 and 37-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki. In Paragraph 4 which begins on page 9 of the Office Action, claims 28 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki in view of U.S. Patent 6,057,820 of Irwin. These rejections are respectfully traversed.

An important feature of the present invention, which distinguishes over prior art systems such as that of Yamazaki, is that a pixel is actively selected and the necessary data is written. The claims are being amended in order to recite such feature.

Thus, in Yamazaki for example, when 40 lines of partial displays (scan lines Y1-Y40) are to be realized in a display of 200 lines, the remaining lines (Y41-Y200) are not selected. This is clear from the lowermost waveforms in Figs. 9 and 10. In paragraph 0051 of Yamazaki, it is disclosed that "effective voltages equal to or lower than the OFF-voltage are applied to a liquid crystal in the non-display region in the partial display state". However, even in such case, the pixel is not "selected" (no selection signal is output onto the scan line) and only OFF data is output onto a signal line.

In a display device such as an LCD, even when data is OFF display data, the data cannot be precisely written into a pixel unless the pixel is actively "selected". In a passive structure such as in Yamazaki, there may be some effects, but in an active matrix display to which the present invention is targeted, because no data can be written without selecting a pixel, this application of OFF data without selection of a pixel is meaningless. Moreover, without selection and writing, it is not possible to prevent degradation of display quality in the background display area.

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Therefore, in accordance with the invention set forth in the claims of the Application, in a partial display mode, a background display area, for which there is no need for selecting if the display is in the OFF state, is actively selected, and OFF display data or the like is written. Therefore, such claims are completely different from Yamazaki in which there is no disclosure of such "selection".

Moreover, and although it is stated in the Office Action that "... SA, smart addressing method, in which the lines are scanned one by one or it can be construed as a sequential scan method", this only refers to a general structure in which a plurality of lines are selected and displayed in order, which is unrelated to "selection of a pixel and writing of background display data" in the background display area as disclosed in the present invention.

Claim 11 is being rejected on grounds similar to those for claim 1. However, Yamazaki not only fails to disclose selection of a pixel in a background display area as described above, but such reference also fails to disclose or even suggest that a line, within the background display area, which is next to the final line in the partial display area is necessarily selected.

Similarly, and with respect to Claim 20, Yamazaki not only fails to disclose selection of a pixel in the background display area, but such reference also fails to disclose the process in which, during a first frame duration after transition to the partial display mode, all pixels in the partial display area and the background display area are selected and data is written in a manner similar to the normal display mode and, then, from the next, second frame duration, predetermined display data is written in the partial display area and pixels in a region of k rows and m columns within the background display area are selected and the background display data is written, as defined in Claim 20.

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Regarding dependent claims 2, 12 and 21, the Office Action states that "Yamazaki teaches the display device the row to be selected associated with pixels of area of k rows by m columns in background area is shifted every one frame". However, Yamazaki fails to disclose selection in the background area, and also the shifting. Although dependent claims such as these patentably distinguish over the art by depending from and thereby containing all of the limitations of the independent claims which are discussed above, they further distinguish over the art for these reasons.

Regarding the rejection of claims 5-7, 15, 23, 24, 27, 29-35 and 37-44 as being obvious over Yamazaki under 35 U.S.C. § 103(a), it was previously pointed out that such reference fails to disclose "selection" of a pixel in a background display area during a partial display mode. Thus, Yamazaki does not consider a process to inhibit selection operation of "rows other than the k rows selected during one frame in said background display area", as described in Claim 5 and in other claims. In Yamazaki, the process applied to the background display area is identical for all pixels, and there is no concept of distinguishing among the pixels.

Regarding the rejection of claims 28 and 36 as unpatentable over Yamazaki in view of Irwin, such claims define that, in the background display area, when a row to which background display data is to be written during the frame arrives, driving of the matrix row by row is allowed. This means that a row is actively selected in the background display area and background display data is written. Yamazaki lacks the idea of the "selection" operation in the background display area. Therefore, the invention as described in Claims 28 and 35 cannot be obtained by combining Irwin with Yamazaki, which lacks the important concept of selection.

As previously noted, the claims are being amended to clarify the feature in accordance with the invention that the writing of data into each pixel of an area

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occurs upon active selection of the pixel. Thus, in the case of claim 1 for example, the paragraph is being added thereto "the writing of data into each pixel of an area occurring upon active selection of the pixel". Similar limitations are being added to claims 11, 20, 27, 35 and 42. Therefore, such claims clearly distinguish patentably over the prior art, as well as the dependent claims which depend from and contain all of the limitations of the independent claims.

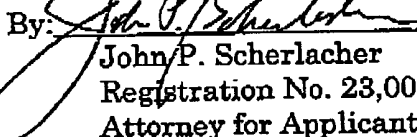
In conclusion, claims 1-44 are submitted to clearly distinguish patentably over the prior art for the reasons set forth above. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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